

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An article of manufacture comprising an optical-ready substrate made of a first semiconductor layer, an insulating layer on top of the first semiconductor layer, and a second semiconductor layer on top of the insulating layer, wherein the second semiconductor layer has a top surface and is laterally divided into two regions including a first region and a second region, the top surface of the first region being of a quality that is sufficient to permit microelectronic circuitry to be formed therein and said second region including an optical signal distribution circuit formed therein, said optical signal distribution circuit made up of ~~interconnected~~ semiconductor photonic elements interconnected by an optical waveguide for carrying an optical signal characterized by a wavelength of about 850 nanometers or less, said optical distribution circuit ~~and~~ designed to provide signals to the microelectronic circuit to be fabricated in the first region of the second semiconductor layer.

2. (Currently Amended) The article of manufacture of claim 22 ~~4~~ wherein the semiconductor photonic elements of the optical signal distribution circuit include ~~optical waveguides and~~ an output element ~~elements~~ element coupled to the optical ~~waveguides~~ waveguide for delivering signals carried by the ~~waveguides~~ waveguide to the microelectronic circuitry.

3. (Currently Amended) The article of manufacture of claim 2 wherein said output ~~elements are~~ element is and optical ~~detectors~~ detector which converts optical signals to electrical signals.

4. (Currently Amended) The article of manufacture of claim 22 ~~4~~ wherein the optical signal distribution network is an optical clock signal distribution network.

5. (Currently Amended) The article of manufacture of claim 22 ~~4~~ wherein the first semiconductor layer comprises silicon.

6. (Original) The article of manufacture of claim 4 wherein the insulating layer comprises an oxide of a silicon oxide.

7. (Canceled).

8. (Currently Amended) The article of manufacture of claim 22 ~~+~~ wherein the combination of the first semiconductor layer, the insulating ~~layer~~ layer, and the second semiconductor layer is an SOI structure.

9. (Currently Amended) The article of manufacture of claim 22 ~~+~~ wherein the second region of the second semiconductor layer is thicker than the first region of the second semiconductor layer.

10. (Currently Amended) The article of manufacture of claim 22 ~~+~~ wherein the top surface of the first region is of a quality that is sufficient to permit CMOS circuitry to be formed therein.

Claims 11-16. (Canceled)

17. (New) The article of manufacture of claim 1 wherein the second semiconductor layer comprises silicon.

18. (New) The article of manufacture of claim 17 wherein the optical waveguide includes a core made of a material selected from the group consisting of silica and silicon oxynitride.

19. (New) The article of manufacture of claim 18 wherein the core comprises silica.

20. (New) The article of manufacture of claim 19 wherein the silica of the core is doped with GeO₂.

21. (New) The article of manufacture of claim 18 wherein the optical waveguide includes a cladding material surrounding the core.

22. (New) The article of manufacture of claim 21 wherein the cladding material comprises silica.

23. (New) The article of manufacture of claim 11 wherein at least the topside of the first semiconductor chip comprises silicon.

24. (New) The article of manufacture of claim 23 wherein the optical waveguide includes a core made of a material selected from the group consisting of silica and silicon oxynitride.

25. (New) The article of manufacture of claim 24 wherein the core comprises silica.

26. (New) The article of manufacture of claim 25 wherein the silica of the core is doped with GeO_2 .

27. (New) The article of manufacture of claim 24 wherein the optical waveguide includes a cladding material surrounding the core.

28. (New) The article of manufacture of claim 27 wherein the cladding material comprises silica.